

DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS

COMMERCIAL STANDARDS MONTHLY

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S. F. Tillman, Editor.

No. 50.

IMPORTANT NOTICE

For four years the Division of Simplified Practice of the Bureau of Standards has issued a monthly bulletin on the progress of simplification and commercial standardization. This publication summarizes the projects under consideration, meetings held, and, wherever possible, the work being done by the individual concerns and nongovernmental groups.

Plans have now been made for increasing both the size and scope of the bulletin and for printing it as a magazine on a subscription basis. The price will be \$1 a year, payable in advance, to the Superintendent of Documents, Government Printing Office, Washington, D. C. The June, 1929, issue will be the last to appear in the present form. The reason for making this change is twofold. First, the mailing list has grown to a size which renders the present method of production uneconomical. Second, more space is required to adequately report the activities of the other divisions of the Bureau's commercial standardization group. A new feature will be the inclusion of nontechnical descriptions of the results of certain testing and research work which appears to be of general interest.

In order that readers may not miss any issues of "THE COMMERCIAL STANDARDS MONTHLY" they are urged to send their orders at once for the year's subscription to start with the July number. A subscription blank appears in this issue.

G. K. BURGESS,
Director.

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"SIMPLIFY YOUR WORK - INSIST ON THE NEW SIMPLIFIED INVOICE FORM."

Commercial Standards Monthly No. 50--1.

The Division of Simplified Practice and the Division of Building and Housing, have moved offices from the Department of Commerce Building, to the Bureau of Standards. The principal reason for this move is the desirability of more closely coordinating the work of the two divisions, not alone with the other divisions of the Commercial Standardization Group, already located at the Bureau, but also with the technical divisions of the Researching and Testing Groups of the Bureau.

The recent activities of the Commercial Standardization Group have demonstrated the desirability of this closer coordination with the Bureau. The resulting advance in public understanding of the usefulness of the work done by the Bureau of Standards as a whole, and its value to industry and business, will be of further advantage in the commercial standardization work.

All communications for the Division of Simplified Practice, and the Division of Building and Housing, should be directed to the Bureau of Standards, Washington, D. C.

SIMPLIFIED PRACTICE

Edwin W. ELY

Address all inquiries regarding Simplified Practice to Mr. Edwin W. Ely, Division of Simplified Practice, Bureau of Standards, Washington, D. C.

1. RESULTS AND BENEFITS

Results and Benefits of Applying Simplified Practice
To Asbestos Paper and Asbestos Millboard

By - H. P. Dalzell

(Research Section)

The adherence this industry accorded its original recommendation which went into effect September 1, 1924, is evidence of its faith in the benefits of simplified practice. The variety of sizes of asbestos paper was reduced from 72 to 12, or 83%, and of asbestos millboard from 21 to 4, or 81%. A survey covering the last half of 1925 showed that 82% of all asbestos paper and millboard produced by the acceptors of the recommendation was in accordance with the simplified sizes and weights. During 1927, however, a change in demand caused the adherence to drop to 76%. The recommendation was revised on May 10, 1928, to meet these new developments and as the schedule now stands, there are 20 sizes of asbestos paper, the variety of millboard remaining the same as in the original draft.

The industry is adhering closely to the latest revision and it is expected that a higher degree of adherence will be shown by the next survey.

The history of the recommendation offers another good example of that flexibility which enables the simplified practice recommendation of any industry to keep pace with changing consumer demand. While adding items as new developments require, and discarding the obsolete, its stabilizing influence to retard any rapid increase of unnecessary diversification such as frequently takes place in an industry that has no definite program of simplification.

Inquiries addressed to the acceptors of this recommendation have brought answers which show that the program is working to the advantage of everyone concerned.

Manufacturers have benefited through reduced inventories, less interruptions for adjusting machinery, release of space for other purposes, etc.

Distributors are benefiting through reduced inventories, reduced capital investment, easier handling, etc. One correspondent wrote: "As distributors of asbestos paper and millboard, we have been able to reduce our stock 30%, have actually increased our sales 10% and saved in overhead and profit 20%."

A firm of architects who accepted the recommendation wrote regarding simplified practice recommendations in general: "There is no doubt that better value and prompter service of materials are given by the manufacturers and distributors. Also, the cost of materials is lessened by application of such standard practice. The purchasers' overhead is greatly reduced by not having to follow up the delivery of materials ordered either direct from the manufacturers or their distributors, as they have a greater stock of material on hand."

It is interesting to note that the architects concluded with a request that their firm be listed as acceptors of 25 Simplified Practice recommendations, in addition to the 4 on which they had already filed their acceptances.

The promptness with which this industry has revised its recommendation to meet changing conditions is a gratifying evidence that it is an active force in business, and there is every reason to believe this support will be continued.

The foregoing is an extract from a more detailed report on this subject. Those desiring further information may obtain a mimeographed copy of the complete statement by addressing the Division of Simplified Practice, United States Bureau of Standards, Washington, D. C.

2.

DIVISION OF SIMPLIFIED PRACTICE

Bituminous Coal: A general conference on simplification of sizes and terminology of bituminous coal was held at St. Paul, Minnesota, on April 10, 1929. The conference was attended by representatives of coal dock operators, wholesalers, retailers, and large individual users of high volatile bituminous coal handled over the docks at the American Head of the Great Lakes, and distributed in the states of Michigan, Wisconsin, Montana, Iowa, North Dakota, South Dakota, and Minnesota. A simplified list was unanimously adopted covering six sizes of screened coal, and terminology for each. The sizes were based on the use of round hole or square mesh screens, and equivalent dimensions for bar screens and slotted plate screens were also adopted. A report of the conference has been sent with an acceptance blank to all interested individuals, companies and associations.

Industrial Truck Tires: Following a preliminary conference of manufacturers of industrial tires held in Akron, Ohio, on March 29, 1929, the tentative recommendation then adopted was presented to the Tire and Rim Association on April 12th, and was approved by the Association.

The recommendation as now formulated represents a reduction of approximately two thirds in the present number of molds. Reductions were made in number of wheel diameters, and in number of tire widths. A single dimension of 2 inches was recommended for the molded height of all industrial truck tires. The Division of Simplified Practice expects to hold a general conference in the near future, at which the recommendations of the manufacturers will be presented to manufacturers and users of industrial trucks.

Industrial Casters: A preliminary conference of manufacturers of industrial truck casters was held in Chicago, Illinois on April 12, 1929. A tentative simplification program was initiated, covering industrial casters of nominal sizes ranging from 2 inches to 6 inches, inclusive. Those present at the conference decided that the first effort should be applied to simplifying the top plate connections for the purposes of bringing about interchangeability between casters of the same nominal size, of the same or different makes. All manufacturers are now being circularized in order to get their specific suggestions as to diameter and spacing of bolt holes in top plates. A number of other simplification possibilities were discussed, and will be taken up in sequence, after the simplification of top plates has been completed.

Gravel Sizes: A representative of the Division of Simplified Practice has been requested to attend a meeting of the Directors and of the Committee on Standardization of the National Sand and Gravel Association in Toronto, Ontario on May 15th, 1929. Reduction in the variety of sizes of gravel will be discussed at this meeting. The Division has received a number of suggestions along this line from users of gravel, such as highway and paving contractors, also from sand and gravel companies in various parts of the United States. In the opinion of those interested, the present number of different sizes of gravel can be greatly reduced to the benefit of everyone concerned.

Screw Jacks: Simplification of dimensions and capacities of screw jacks has been suggested by a prominent manufacturer of this equipment. In his opinion, such simplification would not only be of great benefit to the manufacturers, but would be of equal or greater benefit to distributors and users. The matter is now being taken up with the various manufacturers for the purpose of getting definite suggestions in regard to possibilities for eliminating odd and seldom used sizes.

Street Railway Cars: At the request of a large manufacturer of electric street railway cars, the Division is collecting information regarding a possibility for reducing the variety of designs and general dimensions. A tentative simplified list has been formulated, and will be taken up with each manufacturer. On account of the nature of the business, it is very difficult under present conditions for any manufacturer of this equipment to make up stock parts. Practically every order is a "special" and costs are consequently higher than they would be if all manufacturers could work to certain fundamental standards. When a definite program has been formulated, the matter will be taken up with the various street railway companies, municipal officials, electric railway engineers, and others directly concerned.

Index Ready: An index has been prepared for Volume I, covering the twelve months period, April, 1925 to March, 1926. It is believed that readers will find the index of decided advantage in making back issues of the magazine more easily usable. Complimentary copies of the Index may be obtained by addressing a request to the Editor, The Commercial Standards Monthly, Bureau of Standards, Washington, D. C.

Similar indexes to subsequent volumes of the Commercial Standards Monthly is dependent entirely upon the reception accorded the Index to Volume I.

List of Publications: In addition to the recent publications of the Bureau of Standards, as noted in this issue of The Commercial Standards Monthly under the heading of "New Bureau Publications," there is available a complimentary list of all completed Simplified Practice Recommendations, American Marine Standards; and Commercial Standards. The list which is revised monthly, states the price of each publication and indicates the reduction in variety that has been effected by each simplification program. Requests for this list should be addressed, The Division of Simplified Practice, Bureau of Standards, Washington, D. C.

Approves of Simplification: An automobile manufacturer, in acknowledging receipt of a copy of the story "Results and Benefits of Applying Simplified Practice to Files and Rasps," compiled by H. P. Dalzell of the Division of Simplified Practice, said, "As a large manufacturer of automobile motor cars, we have to say regarding standardization and simplification, that in all places where we have used this method, we have reduced our inventory, also our manufacturing cost and tool cost by standardizing on same tools for various operations."

Paving Bricks: Because of the increased demand for a previously eliminated size paving brick, the Permanent Committee for Simplified Practice Recommendation No. 1, Vitrified Paving Brick, has recommended to the industry that the wire cut lug brick (Dunn) $3 \times 3\frac{1}{2} \times 8\frac{1}{2}$ be reinstated as a standard type.

This size brick was eliminated from the recognized standard sizes on March 20, 1925, but the shipments for this size during the past three years have gradually increased until today it represents 14.5 per cent of the total based upon the survey of the industry in 1928. The inclusion of this size in the simplification program has raised the degree of adherence to this recommendation from 70.1 per cent to 84.6 per cent. There are now 6 sizes of vitrified paving bricks in the simplified list.

In making this announcement the Division of Simplified Practice points out that the paving brick program was the first Simplified Practice Recommendation to be completed by

industry with the cooperation of the Department of Commerce. Much of the success attained by the program has been due to the diligence of the Standing Committee of the industry and the consistent support of the National Paving Brick Manufacturers Association.

Textile Machinery Parts: There is under contemplation a preliminary meeting of manufacturers of bobbins, quills, cones, tubes, etc., to consider simplification of these parts. The meeting will be held in New York about the middle of May, at which time the details of the problem will be concluded and a definite program outlined for proceeding with a variety survey.

Manufacturers who replied to the Division's inquiry, which was instituted following the suggestion of a producer, were unanimous in their belief that this field offered unusual opportunities for reduction in variety.

Shipping Tags: A general conference of all interests was held in New York on April 26, 1929 at the Hotel Roosevelt, to consider the simplification of shipping tags. This program has been in process of development over a number of months by a committee of manufacturers, and the schedule was approved by the general conference to become effective September 1, 1929.

Color for School Seating: A preliminary meeting was held in Chicago on April 12, to consider the practicability of applying the principles of Simplified Practice of color for school seating. The meeting was organized by the Division at the request of the National School Supply Association, and was held under the joint auspices of the Division and the Association.

Dental Hypodermic Needles: Considerable progress has been made with this program in the past month. Suggestions have been received from several manufacturers for changing the tentative schedule for modifying it to conform more nearly with their actual needs. The final meeting of the Simplified Practice Committee of the industry will be held in May, after which it is proposed to submit the program to a general conference of all interests for final approval.

Shoe Goring: The Committee of manufacturers appointed at a recent meeting to examine into the possibilities of simplifying this commodity, reports that the survey of current variety is in progress and that a tentative schedule is imminent. No date has been set for a final meeting on this project.

Plaster and Investment: A survey is being made through this office, at the request of the American Dental Trade Association of the current practice in packaging of plaster and investment used by the dental profession. The purpose of this survey is to determine the degree of adherence to the Association's suggested schedule for packaging and to find out what changes if any will be necessary in developing a final Simplified Practice Recommendation that will be satisfactory to all concerned.

Soft Fibre Cordage: The Simplified Practice Committee of manufacturers of soft fibre or jute cordage reports progress in their survey of this commodity. The Chairman of that Committee has informed the Division that a meeting of manufacturers will be held in New York on April 29 to consider the program and decide upon the date for a general meeting of producers, distributors and consumers.

Restaurant Guest Checks: The chairman of the Simplified Practice Committee of manufacturers, appointed at a preliminary meeting to consider simplification in this field, reports that progress is being made with this program and that an effort is being made to complete the tentative schedule in time for a general conference of all interests late in June of the current year.

Beds and Bed Springs: Recently the standing Committee for Simplified Practice Recommendation No. 2 - Beds, Springs and Mattresses, conducted a survey within the industry to ascertain the adherence to the simplification program in question. A rather interesting letter, quoted below, was received from a manufacturer of beds:

"Since the majority of bed and spring manufacturers have adopted the standard length and width for beds and springs, it has solved a great many disputes we used to have with our customers before the standard went into effect. The dealer naturally expected the spring to fit the bed, and looked to the local manufacturer to make good if one did not fit the other, regardless of which he made. But now, since we make our beds and springs standard, if a dealer calls us up and states that either one does not fit some other manufacturer's, we simply send him a copy of the Simplified Practice recommendation, of which we bought a great many hundred since it has been issued, and let him have it out with the manufacturer who made the spring or bed that was not standard. This has not alone saved us a great deal of money but has made our dealings very much pleasanter with our customers."

Tight Cooperage: There will be a general conference in St. Louis, Missouri, on May 16th, 1929 to develop a Simplified Practice Recommendation for tight cooperage. The proposal which was worked out by the Standardization Committee of the Associated Cooperage Industries of America will be used as agenda. The meeting will be held at the Jefferson Hotel, in conjunction with the convention of the aforementioned association.

Hospital Plumbing Fixtures: A general conference of all interests will be held at the Department of Commerce on Wednesday, May 22nd, 1929 to develop a Simplified Practice Recommendation for hospital plumbing fixtures. The survey which was worked out by a joint committee of hospital officials and the manufacturers will be used as the agenda.

Carbonated Beverage Bottles: Upon request, the Division of Simplified Practice is now preparing a composite of all the statistical data that has been made available by the manufacturers of carbonated beverage bottles. The Simplified Practice Committee of the industry will review the composite report before it is submitted for consideration of a general conference of all interests.

Ice Cream Moulds and Cartons: At a meeting of the Standardization Committee of the International Association of Ice Cream Manufacturers, which was held in New York, City on April 3rd, 1929, the standardization of moulds and cartons was discussed.

It was the consensus of the meeting that the Chairman of the Committee be authorized to institute a survey of current production and demand and to place the facts before the next convention of the Association for its preliminary approval prior to passing a list of mould and carton sizes and capacities through the regular procedure of the Division of Simplified Practice.

News Items: Where it is clearly stated in news items appearing in The Commercial Standards Monthly that the subject matter is taken from other publications, and the publication named, copies of the said publication are not available to our readers through the Division of Simplified Practice, as we do not keep them on file; neither do we assume responsibility for the accuracy of statements taken from other papers. Any of our readers interested in securing more information on these abstracted items should communicate direct, or through us, with the magazine from which it is taken.

Steel Bathroom and Medicine Cabinets: At a general conference of all interests held on Thursday, April 25th, a Simplified Practice Recommendation covering steel bathroom and medicine cabinets was approved. This recommendation will be effective for new production Janu-

ary 1, 1930. It was felt by those in attendance at the meeting that adherence to this program by architects, contractors and specifying authorities would do much to eliminate waste in the production and sale of this equipment.

Wheelbarrows: At a general conference of manufacturers and users of wheelbarrows held at the Department of Commerce, Friday, April 26th, 1929, a schedule for Simplified sizes and types of wheelbarrows was approved. In addition to approving the program, the conference voted that all contractor's barrows shall be rated and catalogued according to struck capacity. This will insure accuracy when the barrow is used as a measuring device. It was appointed out that contractors use their barrows for handling material, and also for measuring, and for this reason it is felt that accurate measurements of the capacity of wheelbarrows are desirable.

3. STANDARD TERMINOLOGY

Coincident with the announcement that the Chief Coordinator of the United States was working on a standard stock catalog for all Federal Government Departments, many of the trade magazines contained stories on the subject, with respect to the progress made by companies in private industry. Closely associated with the idea of a standard catalog is that of a dictionary of terminology, an adequate description of commodities.

Rear Admiral T. H. Hicks, U. S. N., designer of the Navy Standard Stock Catalog, has been designated Chairman of the Federal Standard Stock Catalogue Board which is under the supervision of the Chief Coordinator. In developing that catalogue Admiral Hicks included a standard nomenclature for descriptive terms. This same feature will be included in the Federal Catalogue.

In discussing the subject of a "dictionary of terminology," the magazine "Packages," says "the lack of a standard dictionary of terminology confuses the buyers and makes the task of the salesman harder. Mr. I. W. Schoettle, Manager Flint (Michigan) branch of Gregory, Mayor and Thom Company, sets forth the many economies that would result from the adoption of a standard catalogue, in a story on the subject which appeared in "Office Appliances."

4. STANDARD EQUIPMENT

A recent advertisement appearing in the New York newspapers carried the following message, under the heading "Saving through Standardization."

"In unified operation of our companies (Electric Utility Service) we have standardized equipment, so that we use fewer sizes and kinds of cables than formerly. The saving through standardization in this one item will be \$300,000 in the next year. Economies like this are a natural and necessary part of operating public service companies." (signed) M. S. Sloan, President.

5. TOO MANY SIZES

"Too many sizes of cans" is the subject of an editorial in, The Canning Trade Magazine, in which it is brought out that the Tomato industry alone uses 22 different sizes of cans and as many more sizes of glass jars into which tomatoes have been packed and offered to the consuming public. "It has simply reached the ridiculous, and it is time that sanity took hold of this and regulated it into sense" said the editorial writer, adding that "here is work which the 'Government Simplification Committee' (The Division of Simplified Practice) should undertake at once, and bring some order out of this utter confusion. Each packer will strenuously contend for the retention of his particular sizes, but in a matter of this kind the general good of the whole industry must be first reckoned. Let the Government begin upon

these can sizes and with the industry work them down to a comparatively few, and as few as the needs of the consumers will permit."

6. WINS ESSAY PRIZE

Robert F. Elder of Berlin, New Hampshire, has been awarded the Alvan T. Simonds Award of One Thousand Dollars for the best essay on "Reducing the Costs of Distribution," for the year 1928, according to announcement made by the American Management Association, which conducted the competition. Mr Alvan T. Simonds, President of the Simonds Saw and Steel Company, Fitchburg, Massachusetts, makes an annual award for the purpose of stimulating more interest on the part of business men in the study of economic problems. Mr. Elder is a graduate of Harvard University and Specialist in Market Research for the Brown Company of Berlin, New Hampshire and Portland, Maine. Honorable mention was awarded to Ray M. Hudson, Assistant Director, Bureau of Standards, Department of Commerce, Washington, D. C. The judges were Dr. Fred E. Clark, Professor of Marketing, Northwestern University, Dr. Donald Cowan, Swift and Company, and Mr. E. E. Ames, vice President and Director of Sales, General Box Company.

7. THE CONSUMER

In his story, "Analyzing the Consumer," which appeared in Commerce and Finance magazine C. W. Steffler says that "the consumer is king, the axis around which the whole department store business revolves, and the buyers' market, of which manufacturers have been complaining for years is, in reality, a consumers' market. Instead of the old option of "taking it or leaving it," the public today has multifold opportunities for picking and choosing, with the added advantage of competitive prices.

"This changed state of affairs was induced largely by mass production and the dictates of fashion, but it is further complicated today by the inability of the retailer to measure consumer acceptance at all accurately. Retailing has made astounding progress in recent years, scientifically, approaching problems which were formerly decided on the basis of guesswork and snap judgment. It must now make a searching analysis of what the consumer wants or could be made to want, and supply it at an attractive price."

In the development of a simplification program an industry first conducts a survey to ascertain the volume of sales accorded each variety, or size, of its commodity. Since a "simplified line" represents only those items in steady and consistent demand, it is evident that simplified practice is an index of consumers normal preference. Business men in considering the application of simplified practice are to an increasing degree becoming aware of the several advantages that follow the conclusion of a variety survey.

8. MAKING PROFITS

"Make Each Line Pay A Profit," is the heading of a recent editorial appearing in, The Industrial Distributor and Salesman, magazine in which the distributors were urged to eliminate the non-wanted or slow selling items. This is what simplified practice will do, since the "simplified line" is a complement of best sellers. "What is the matter with the profit situation in the industrial supply field?" asks the editorial writer. "Why can't "distributors make the money they are entitled to in return for the services they render industry?

"One reason, for the non-profit malady, in the opinion of a prominent distributor to whom I talked recently, is that the average distributor is trying to do a job on too many lines. 'Cut out your cats and dogs,' advises this distributor. Analyze your lines carefully

and push those on which you can make a fair return. Weed out the ones which are unprofitable. Let the other fellow sell them, and, in the last analysis, that is just good common sense. There isn't any logical reason why you should spend time, money, and effort in selling a line unless you are going to be rewarded with a fair profit. Make each line stand on its own legs. This proposition of looking to the profitable lines to carry the unprofitable ones simply will not hold water."

Readers of the Commercial Standards Monthly, interested in the subject touched on in the editorial quoted should find it worth while to read "Simplified Practice - What It Is and What It Offers." This is obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C., at a cost of 10 cents a copy.

9. SELF-GOVERNMENT

According to an editorial appearing in The Forbes Magazine, "American industry faces either a larger measure of political government or a larger measure of self-government. Industry itself will decree which. Governmental curbing of business invariably has been the outgrowth of widespread hostility, aroused by unwise practices. Industry, as we all know is undergoing an evolution."

After discussing some of the conditions that are now existing in industry the writer of the editorial quoted above, continued: "Industry should at once begin to give careful consideration to this question. Shall industry adopt self-government satisfactory to the nation or shall it let matters drift from bad to worse and be subjected to radical political government?"

Simplified Practice exemplifies one aspect of self-government in business, and much has been done by industry in that regard, on its own initiative.

Through the application of the principles of Simplified Practice it has been demonstrated that voluntary cooperation in self-government is a practical and essential part of modern management methods. The high degree of adherence that industry has accorded effected simplified practice recommendations, has proven that the program pays, and pays well, and that industry does not need a "policeman" to make it do those things which are for the public good, and, therefore, for its own.

10. SIMPLIFIED INVOICE LEAGUE

An impressive number of reports have been received by the Division of Simplified Practice, based on results obtained from a survey of all incoming invoices which adhere strictly to the simplified invoice form. These have been tabulated according to the individual companies sending in the reports, and will be found under Appendix, this issue of The Commercial Standards Monthly.

The Division of Simplified Practice is making a complete analysis of the reports received, and will publish the detailed results in mimeographed form. These will be available upon request, without charge. This report will show results among various industries, (such as railroads, public utilities, etc.) and also by geographic areas.

MARINE STANDARDS

A. V. Bouillon

All inquiries for information pertaining to the work of the American Marine Standards Committee should be addressed to the Secretary, Mr. A. V. Bouillon, United States Department of Commerce, Washington, D. C.

11. COMMITTEE NEWS

The American Marine Standards Committee was organized in 1923, primarily to promote simplification of practice and economy in the construction, operation, and maintenance of ships and port facilities. One of the special objects of the organization is to establish standards for design, construction, and operation where such are covered by conflicting rules of varying authority and origin, in the hope that all of them will agree to the common standards.

Information regarding the work including a list of the publications issued under the auspices of the committee may be secured by request from the Secretary of the American Marine Standards Committee, Room 713, Department of Commerce, Washington, D. C.

In order that all concerned in shipbuilding and ship operation may become better acquainted with the work being done by the American Standards Committee, the executive council of the Committee has announced that copies of the marine standards will be mailed free, upon request, to schools and colleges interested.

It is the belief of the organization that especially colleges having naval architecture and marine engineering courses, will find these pamphlets of value. The idea in offering these publications is to popularize the standards among those who may have occasion to use them in practice.

The quarterly report was issued early in April setting forth the principal activities that occurred during January, February, and March.

Manuscripts were issued for printing the following publications:

AMSC-61-Rules for Design and Construction of Marine Boilers and Pressure Vessels.

AMSC-62-Marine Boiler Steel Plates.

Preprints of publications AMSC-52, 53, and 54 containing standards for medicine chests and contents for ocean-going, coastwise, and small vessels have been prepared and a limited number is available for distribution while awaiting the printed copies.

Preliminary issues of alphabetical and classified indexes to the American Marine Standards promulgated to date have been prepared and a limited number is available for distribution.

Proposed alternative standards for solid and split sleeve couplings for propeller shafting have been submitted to the Technical Committee on "Engineering Details." The ballots received to date indicate that these will be approved by the committee. They are then to be submitted to the membership.

Suggestions have been received for proposed standards for hatch beam ends and sockets which will be submitted at an early date to the subject committees concerned for selection.

The Technical Committee on "Port Facilities" and the Subject Committee on "Standard Uniforms for Officers of the Merchant Marine" referred to in previous reports, have been formed and are expected to begin their activities in the near future.

A preliminary draft of specifications for wire ropes for marine use revised to carry out suggestions recently received, will be submitted to the membership during the coming month.

Good progress is being made in printing the following publications, copies of which will be distributed to the membership when available:

AMSC-55 - Specifications for ship propellers and templates for propeller blade flanges. AMSC-56 - Ship scupper and drains. AMSC-57 - Kinds and sizes of chinaware for ship equipment.

COMMERCIAL STANDARDS

I. J. Fairchild

Address all inquiries on the subject of Commercial Standards to Mr. I. J. Fairchild, Commercial Standards Unit, Bureau of Standards, Washington, D. C.

12. COMMERCIAL STANDARDS UNIT

LIMITATIONS OF STANDARDIZATION

Mr. K. Gramenz of Berlin, in an article on the above subject in the March, 1929 issue of Mechanical Engineering, says:

"Standardization more and more becomes an essential factor in the industrial production of goods and transportation. The more the field of standardization expands, the more frequently it is asked, 'How much farther will standardization go, and what are its limitations?'

"The ever-increasing need of standardization is a result of the tendency toward a better-planned system of procuring goods. Standardization must aid in reducing the cost of production and transportation of goods. A standard should therefore in the first place foster economy. Otherwise it either hampers economic progress or remains a 'paper standard'. This fundamental requirement with which a standard must comply is sufficient to indicate the limitations of standardization.

Standardization cannot disregard tradition without serious loss through the wiping out of tremendous investments. Also, standardization cannot simply abolish certain existing forms in the economic structure; it can only influence the functions and effects of the latter. Nor can standardization change technical considerations overnight; it must let experience ripen in the course of time. Personal views, based on experience and local conditions, cannot be forced. The road of technical progress must be left free. Standardization must not eliminate sound competition, but only do away with unjustifiable and uneconomical variety. Technical inability makes itself felt in matters of standardization, with regard to the limits of dimensional accuracy and the production of engineering materials."

WALL PAPER

Manufacturers, distributors, and consumers, of wall paper, together with others interested, will meet at a general conference to be held at the Commerce Building, Washington

D. C., on May 25, 1929, to consider the adoption of a Proposed Commercial Standard for grades of wall paper. All those interested in the subject are invited to attend this conference which is called for 10:00 A.M.

The specifications are for the protection of the consumer and are minimum standards of quality, making no limitations on individual artistry or craftsmanship.

When wall papers are made in accordance with the Commercial Standard as accepted, it is the intention of manufacturers to mark their goods with a self-certifying label. This label will be the customer's certification that paper so labeled is of good serviceable grade made in conformity to the Commercial Standard and containing full surface coverage. Heretofore the purchaser or wall paper, usually the woman of the household, had little or no guide in the procurement of serviceable wall paper, but it is hoped that paper manufactured according to these standards of quality, properly labeled and guaranteed by the manufacturer, will restore confidence in the mind of the buyer.

FUEL OILS

Dr. H. T. Kennedy, Oil Expert of the Bureau of Standards, addressed the Annual Conference of the American Oil Burner Association on April 10, on the subject of Standard Grades of Fuel Oils. The Burner manufacturers are enthusiastically in favor of uniform specifications for fuel oil as a means of eliminating many of the complaints arising from difficulties directly traceable to the use of oils unadapted to the apparatus at hand.

More than 100 acceptances have been received for the Recommended Commercial Standard for Domestic and Industrial Fuel Oils. This list includes practically all of the oil burner manufacturers, more than 40 of the leading oil refining companies, and many large distributors and consumers of fuel oils. It is hoped that official announcement of success of this project may be issued in the near future.

HICKORY GOLF SHAFTS

Certain developments in the matter of mechanical tests for the stiffness of hickory golf shafts, together with new interest manifested by several other organizations, has made it necessary to postpone the general conference tentatively scheduled for May 3. However, considerable progress has been made toward a concensus among the manufacturers, and it is expected that a general conference will be held in the near future, to which all interested producers, distributors, and consumers will be invited.

BOYS' BLOUSE AND SHIRT MEASUREMENTS

The general conference of April 17, adopted a Recommended Commercial Standard covering Standard Minimum Measurements for Boys' Blouses, Waists, Shirts, and Junior shirts. Reports of the general conference, together with copies of the Recommended Commercial Standard as revised, have been disseminated for written acceptance. Additional copies are available upon request. A number of distributors have congratulated the Bureau on constructive step toward a better general understanding as to what constitutes a satisfactory basis for size designation of these garments. It is believed that this project will pave the way toward size standards for other ready made garments for men and boys.

SPECIFICATIONS

A. S. McAllister

Address all inquiries on matters pertaining to Specifications and the Certification and Labeling Plans to Dr. A. S. McAllister, Division of Specifications, Bureau of Standards, Washington, D. C.

13. CERTIFICATION PLAN FAVORED

The certification plan of purchase for the Federal Government, developed and inaugurated by the Bureau of Standards, has been approved thus far, by about 2,000 separate firms, which have expressed their willingness to supply commodities guaranteed to comply with Government Specifications. The plan has been applied to 248 Government Master Specifications. The 248 lists of willing-to-certify manufacturers which have been compiled, represent more than 7,500 separate requests for listing. Calling attention to the availability of the certification and labeling plans of purchase, as developed by the Bureau of Standards, Rear Admiral H. H. Rousseau, Chief Coordinator of the Federal Government, in a bulletin recently issued to the heads of all departments and establishments of the Government, stated that "great economies may be effected in manufacture and distribution by concentrating production on one standard line of goods rather than on many lines. The Government as a large consumer, is concerned vitally with plans that effect standardization of products and for this reason all departments and establishments should lend their support to the certification and labeling plans of purchase."

14. A MARK OF MFRIT

"Sooner or later it will become imperative that the manufacturers of building materials put upon them some easily distinguished brand of quality." It will be forced upon them, by the consumers' demand, if they do not do it voluntarily, editorially remarks the National Builders' Supply Bulletin, adding that,

"The lumber manufacturers are cashing in upon this practice right now. They are branding for grade most of the lumber that is put upon the markets. More recently the manufacturers of common brick are going a step farther. They are inaugurating a plan of certifying the quality of the brick in the walls of the finished home. And folks are developing a surprising interest in the certified house. Most people like to feel that they are getting at least their money's worth. And there is a mighty selling appeal in the guaranteed article. Ignoring this fact is a tremendous mistake."

The same trend of thought appears in "The Hardwood Record" which says, editorially, that "grade-marking and trade marking of those varieties of lumber which are merchandised under conditions making the application of that principle feasible, has developed in the public minds a confidence in lumber and a respect for the lumber industry which never before existed. The public is rapidly accepting the fact that a lumber product of assured quality and dimensions, and of specified utility, can now be purchased without difficulty."

15. WILLING-TO-CERTIFY LISTS (Typical Examples)

In the April 15th, 1929, issue of the "Commercial Standards Monthly," there appeared some typical examples of the "willing-to-certify" lists. This is continued in the following table. Readers interested in the complete list, as per above may secure it upon request, for which there will be no charge:

<u>Specification Number</u>	<u>Commodities Covered</u>	<u>Willing-to-certify Manufacturers</u>
93	Gaskets, asbestos-copper corrugated	7
95	Packing, asbestos valve stem	26
99	Packing, fabric condense tube	6
100	Packing fiber for lubricating and fuel oil	15
101c	Packing, flax	16
102	Packing metallic, flexible	10
105	Packing metallic (fixed ring type)	14
106	Packing metallic plastic	14
107	Packing semi-metallic	12
108	Packing metallic solid (floating ring type)	12
115	Pigment, titanium, dry and paste	85
137a	Paint, olive drab (semi paste and ready mixed)	165
159	Duck, light weight (Army duck gray)	14
160	Duck tent (special construction for bleaching or dyeing gray)	13
162a	Pipe welded steel (black and galvanized)	15
163	Ink, record and copying	21
164	Ink, writing	25
165	Ink red	25
166	Ink, stamp pad	21
167a	Ribbons, typewriter	34
168a	Ribbons, hectograph	32
169a	Ribbons, computing and recording machine	28
239	Rust preventive compound heavy	39
247	Plaster, gypsum	25
248	Gypsum, calcined	23
249	Lime hydrated for structural purposes	47
250	Quicklime for structural purposes	54
251a	Cheesecloth for wiping purposes	29
252b	Cheesecloth, unbleached	21
253b	Cheesecloth, bleached or semi-bleached	10
255a	Denim, brown (unshrunk)	4
256a	Denim, blue indigo (shrunk)	4
257a	Denim, blue indigo (unshrunk)	7
259a	Rags, colored cotton, for wiping machinery (sterilized)	38
260	Cloths, wiping	32
261a	Rags, white cotton for wiping machinery (sterilized)	41
262a	Waste, cotton, white	34
263a	Waste cotton, colored	37
264a	Waste wool, colored	25
265a	Ink, black waterproof drawing	7
266a	Ink, indelible marking for fabrics	15
268a	Brick, fire clay	35
278	Paint, outside white titanium zinc (semi-paste and ready mixed)	144
283	Putty	83
301	Sheeting, cotton, brown	23
302	Sheeting, cotton, brown, wide	18
303	Sheeting, cotton, bleached wide	12

DISTRIBUTION

16. WASTE IN TRAFFIC

That several wasteful traffic and shipping practices which are now quite common could be done away with by placing competent traffic men in charge of all work pertaining to transportation, is the opinion of one concern which answered a questionnaire on this subject sent out by the Department of Commerce. These practices were listed as follows:

Using shipping containers which do not comply with the specifications shown in the classification; failure to pack so as to procure the lowest rating; misdescribing shipments in the bill of lading; using estimated instead of actual weights; forwarding shipments via circuitous routes at the same or higher rates than apply via shorter or more direct routes; failure to take advantage of package car service on less than carload shipments, resulting in delay and unnecessary tracing; using cheap shipping containers; illegible bills of lading and shipping orders; failure to make proper inspection of bad order shipments before accepting from carriers.

17. STUDY WASTE

Wholesalers and retailers must develop a method of ascertaining the cost of selling particular commodities to individual consumers if the wastes of distribution are to be eliminated, it was stated by the Assistant Director Frank M. Surface of the Bureau of Foreign and Domestic Commerce of the Department of Commerce, in a recent address delivered before the Adcraft Club of Detroit. This method will be a sort of cost accounting for the distribution industries, Mr. Surface said.

18. DISTRIBUTION EFFORT

According to the bulletin issued by the Knoepfel Industrial Counsel, (Terminal Tower, Cleveland, Ohio) the crying need of today is for adequate profits, regularly earned, adding that costs - all of them - are costs of distribution. Mr. C. E. Knoepfel, recalls that "in 1850 productive effort was 80% and distributive effort 20%. By 1900 the ratios stood - 60% and 40%; and 50% in 1920. At this time the relationship is probably 40% and 60% with the likelihood that in 1950 the 1850 ratio may be reversed, and productive effort will be 20% and distributive effort 80%. All of which shows the enormous importance of all that has to do with the great problem of distribution."

RESEARCH

19. PRODUCTION ECONOMICS

Economics of production presents a field that is as yet little developed, says Dean Dexter S. Kimball, in McGraw-Hill Book Notes. Much work has been done upon the somewhat restricted portion of this field that may be described as the finance of production as exemplified in the financial considerations that pertain to the design of a power plant.

But the application of the more general laws of economics, such for example as the law of diminishing returns, to the design and operation of industrial plants has not progressed very far. There is a considerable body of economic knowledge that has been reduced in a general way, that is applicable to industry in specific ways if it can only be developed quantitatively.

At present these laws are for the most part known qualitatively only. Instruction in this group should cover the basic economic and manufacturing principles of modern industry as concerns industrial location, organization and management. It should present the economic significance and limitations of such aspects of industry as specialization, standardization, transfer of skill, division of labor and scientific management. It should also discuss the new economic problems that gather round such phenomena as quantity production, deferred payment purchasing ownership of stocks and bonds by people at large, and the more elusive problems of the circulation of money from employer to worker as wages, and back as purchase money, etc.

20. MARKET DATA HANDBOOK

The "Market Data Handbook of New England" has just been issued as Part III of the Commercial Survey of New England, Parts I and II of which "The Industrial Structure of New England," and "The Commercial Structure of New England," are now in preparation. The "Market Data Handbook" is designed to serve sales managers, advertising men, and others interested in sales research as a handy working manual containing statistical data on the several marketing or trading areas of the New England States.

The entire New England Market has been combined into three types of trading areas, 13 major, 32 wholesale, and 114 retail, each designed to serve a particular scale of distribution - national, regional, or local. In addition to highway and railway maps, the Handbook includes maps showing the major marketing areas on a county basis and the wholesale and retail areas on a township basis. Market statistics of population, wealth, standard of living and trade outlets have been compiled for each of these trading areas, the compiling of data on a township basis representing an innovation in market analysis.

A number of pages are devoted to the practical use of the data. For example a comparison of the population in specific areas with the number of trade outlets of a given type in that territory furnishes a measure of the degree of competition in that line. The data on sources of income bring out the relative importance of manufacturing or agriculture in specific regions, affording a basis for market conclusions on the relative effect of industrial or agricultural prosperity or depression on trade.

An indication of buying habits as well as of buying power is furnished by such data as those on bank deposits; home tenure; the number, in relation to total population, who paid an income tax in 1924; the percentage of inhabitants who purchased a new automobile during 1926 and 1927; magazine circulation; and the number of homes using electricity. The latter figure indicates especially the potential market for the entire range of electric fixtures and appliances.

The "Market Data Handbook" is available from the Superintendent of Documents, Government Printing Office, or any District Office of the Bureau of Foreign and Domestic Commerce for \$1.75 a copy.

BUILDING AND HOUSING

James S. Taylor

21. BUILDING AND PLUMBING CODE REGULATIONS

A gratifying trend toward uniformity in building and plumbing code regulations is indicated in the extensive use, in municipalities throughout the country, of the recommended minimum requirements that have been issued by the Building Code Committee of the Bureau of Standards (Department of Commerce) and by its Sub-committee on Plumbing. Representing as they do the results of extensive laboratory research, expert professional judgment, and co-

operation from a large number of architects, engineers, builders and others, they make available material which is finding a constantly increasing use in the preparation or revision of local codes.

A recent survey has revealed that approximately 207 municipalities have drawn from the various recommendations of the Building Code Committee in preparing or revising their local codes, either in whole or in part, as the basis for their plumbing ordinances. The States of Maine, New York, Virginia, Florida, Indiana, Illinois, and Iowa, have also the plumbing report in connection with state regulations of plumbing.

22. "A ZONING PRIMER"

Civic Organizations in two mid-western cities each placed orders during the past month for 5,000 copies of "A Zoning Primer." It was indicated that the pamphlets would be used, in connection with the consideration of local zoning ordinances, in order to acquaint citizens with the advantages of proper zoning, which protects home owners and other property holders in the reasonable use of their real estate.

23. "PRESENT HOME FINANCING METHODS"

A large electrical manufacturing company has informed the Division of Building and Housing of its purchase of a second large quantity of "Present Home Financing Methods," making 4,000 in all for the concern.

The booklet is designed to be of help to individuals who wish to buy or build a home, or to re-finance a previous purchase, and also is designed to be helpful to business men, and other groups, who may wish to improve their own local home financing facilities as a means of public service, and in order to facilitate the building and sale of new houses.

24. CITY PLANNING

Two reports on the progress of city planning in the United States, have been prepared by the Division of Building and Housing for release in May. The first, "A Tabulation of City Planning Commissions" contains a general summary of the growth in the number of planning commissions and is more comprehensive in its scope than the previous tabulation issued by the Division last year, which reported only those cities of over 25,000 inhabitants. Municipalities of all sizes are covered in this report and the data collected in connection with the various commissions are tabulated.

The second report "A Survey of City Planning and Related Laws in 1927-28" is a compilation of laws on city planning and certain related matters that have been passed at legislative sessions of the various states during these years. This survey also includes a brief analysis of the trend of legislation in the field, and an index grouping the laws according to subject.

UTILIZATION OF WASTE

25. STANDARD VOLTAGE

The Electrical World in a recent editorial on a proposed standard system for voltage, says "recently extended lines, inter-connections and economic pressure to get greater efficiency in the industry developed a demand for the standardization of voltage for systems and apparatus. It is not the thought that radical changes will follow immediately upon the adoption of the new standard voltages. The purpose is to develop a plan whereby uniformity

and simplification will result in time if all try to follow the proposed standards to the full economic and operating limits. Nor is it intended to limit the growth of service by fixing hard and fast standards, the proposed system is only a guide to better things." In the same issue of the Electrical World, Mr. A. L. Harding of the Electric Bond and Share Company, has an article on the proposed standards, in which he says, "the present standard voltage ratings do not meet the operating needs of the industry, they are not interchangeable, are not suitable for parallel operation, and thus the obvious economic benefits of standardization, lower costs and shorter deliveries are not being realized."

26. ENDORSES GRADE MARKING

A resolution passed at the recent convention of the National Association of Builders' Exchanges endorsed the work of the National Committee on Wood Utilization in general and particularly its work in behalf of the grade-marking of lumber, expressing the conviction that grade-marking would aid materially in the elimination of irresponsible and unscrupulous contractors and material men.

The grade-marking movement was started by the National Wood Utilization Committee to effect the more economical use of wood and to protect the consumer, grade-marking enabling even the most non-technical user to purchase his lumber with the assurance of getting exactly what he specifies.

27. UTILIZING WASTE SPACE

In line with the elimination of waste in all forms of endeavor, as, for instance, the use of corn stalks in making paper, cities in the future must give more attention to the elimination of waste space, says E. E. Duffy in the "Southwest Builder and Contractor," in discussing the utilization of waste space under railway tracks. Of the several conditions hampering cities, now that the automobile has complicated transportation problems, one of the most in need of corrective measures is the elimination of "Chinese walls," accumulated through the construction of retaining walls and fills by electric and steam railroads. It has long been the custom in elevating railroad tracks to build parallel retaining walls, filling in between them with earth, with occasional openings at street intersections. Mr. Duffy says that instances can be cited to show that this space under the tracks can be utilized to the advantage of both railroads and the general public.

28. MAN-POWER WASTE

"Avoid waste in man power," writes Dr. Edwin Hulme McIlvain, (Director of employment service department, Edward G. Budd, Manufacturing Company of Philadelphia) in "The Iron Age" pointing out that the personnel department has a vital influence on production schedules and operating profits by guarding health and spirits of workmen.

"Adequate wages, reasonable hours of work, opportunity for training, education and advancement and healthful working conditions are fundamental for success, both for industry and the worker," said Dr. McIlvain in his article. He notes that chance, fate and other elements still play a large part in human waste, but within the last ten years managers of industry have taken long steps forward in stopping the tremendous leaks in the profit side of the ledger, caused by unnecessary loss in man power.

29. INTERNATIONAL MANAGEMENT

The fourth International Management Congress will be held in Paris, France, June 19 to 23, 1929, under the jurisdiction of the International Committee on Management Congress-

es, and follows those held in Prague in 1924, Brussels in 1925, and Rome in 1927. It is arousing wide interest and will be participated in by engineers from all the major industrial nations, such as France, Germany, England, and the United States, as well as from nearly all of the European countries and from Japan.

ELIMINATION_OF_WASTE

30. WASTING DOLLARS

"Did it ever occur to you that a dollar which you save from waste is just as good as the dollar which the company receives from a customer?" asks Glen Gardiner in "The Foremen's Magazine" in his article "Can We Ever Reduce Waste Entirely?" After discussing this question, Mr. Gardiner says that there are five general classes of waste: (1) Waste time; (2) waste material; (3) waste machinery and equipment; (4) waste power, heat, light, and waste; and (5) waste space. He goes a step further in his story and lists a number of the important causes of each of these classes of waste.

31. BANKERS HOLD CONFERENCE

Bankers from twenty states in the Mississippi Valley recently held a two-day conference in Chicago, on Commercial Bank Management, under the auspices of the Clearing-house Section of the American Bankers Association. The conference was concerned wholly with the broad subject of management in the conduct of successful banking.

"The importance of the subject at the present time made this conference especially timely," says an account of the conference in "The American Bankers Association Journal." "Leaders in the banking business have repeatedly emphasized the need for better management in banking today. What scientific management has done for industry in the direction of elimination of waste, reduction of costs, increase in operating efficiency, and other similar improvements, it can also do in a greater measure than it has done so far, for banking."

32. GOVERNMENTAL ECONOMIES

By coordinating Government communications, so as to make available to all Government departments and establishments, the cable, radio and telegraphic services in particular branches of the Government, a total of approximately \$1,750,000 has been saved in tolls during each of the past two years, the Chief Coordinator of the United States. Rear Admiral H. H. Rousseau, recently announced. In a bulletin to the heads of all governmental activities, Admiral Rousseau pointed out that there are now available for governmental use the facilities operated by the Federal Communication Service and the Army Signal Corps. Through these systems messages may be transmitted practically everywhere.

33. WASTE CAMPAIGN

"A War on Waste" is the editorial theme of the April 10, 1929, number of The Insilco Club News, published by the International Silver Company at Meriden Connecticut. In the editorial "mast" the Club News says "Waste Must Go." The special number was issued to support a "waste elimination campaign" carried on by the company from April 15th, to 27th inclusive. Like many other progressive industrial concerns, the International Silver Company considers waste a very unnecessary evil. The idea of a waste elimination week has been carried out, with worthwhile results, by many concerns.

34. APPENDIX

Simplified Invoice League - Reports received from April 1st to April 25th, 1929.

Company	Period	Invoices Checked	On Simplified Form	Per Cent of Adherence
The F. Bissell Company, Toledo, Ohio	10 days	500	270	54.00
R. V. Aycock Company, Kansas City, Missouri	-	-	-	47.00
Lake Shore Electric Ry. Co., Sandusky, Ohio	9 days	80	30	37.50
Chicago & Joliet E. Ry. Co., Joliet, Illinois	31 days	263	96	36.50
Interstate Iron and Steel Co., Chicago, Ill.	1 week*	600*	-	33.33*
Zimmerman Steel Company, Bettendorf, Iowa	-	-	-	30.00*
Purchasing Agents Ass'n. of Syracuse, and Central New York, Syracuse, New York	-	-	-	25.00*
Webb Belting Company, Kansas City, Missouri	-	-	-	25.00
De Vilbiss Manufacturing Co., Toledo, Ohio	10 days	750	180	24.00
Tri-City Ass'n. of Pur. Agents, Bettendorf, Iowa	-	-	-	22.50
Consolidated Paper Company, Toledo, Ohio	10 days	544	121	22.25
Kirkby Mach. and Supply Co., Toledo, Ohio	10 days	346	74	21.38
Sun Oil Company, Toledo, Ohio	10 days	142	3	21.13
Bunting Brass and Bronze Co., Toledo, Ohio	10 days	232	49	21.12
Toledo Edison Company, Toledo, Ohio	10 days	990	212	21.04

APPENDIX (Contd.)

Company	Period	Invoices Checked	On Simplified Form	Per Cent of Adherence
Acme Wire Company, New Haven, Connecticut	10 days	284	58	20.42
Dallas Railway and Terminal Co., Dallas, Texas	1 week	114	23	20.18
Electric Auto Site Company, Toledo, Ohio	10 days	-	-	20.00
St. Louis Public Service Co., St. Louis, Missouri	15 days	757	140	18.49
K. C. Power and Light Co., Kansas City, Missouri	-	-	-	18.00
Texas and Pacific R. R., Dallas, Texas	1 week	700	120	17.14
Austin Brothers, Dallas, Texas	5 days	77	13	16.88
Buckeye Clay Pot. Company, Toledo, Ohio	10 days	77	11	16.41
American Radiator Company, Kansas City, Missouri	-	-	-	16.00
Community Traction Company, Toledo, Ohio	10 days	324	42	12.96
Standard Electric Stove Co., Toledo, Ohio	10 days	101	12	11.87
Atlas-Ansonia Company, New Haven, Connecticut	10 days	127	15	11.81
Goodyear's India Rubber Glove Mfg. Co., Naugatuck, Connecticut	10 days	492	58	11.79
The Logangear Products Co., Toledo, Ohio	10 days	226	26	11.50
Walraven Brothers Inc., Dallas, Texas	1 week	287	23	8.36
Phoenix Box and Lumber Company, Toledo, Ohio	10 days	17	1	5.88

APPENDIX (Contd.)

Company	Checked	Simplified Form	Per Cent of Adherence
Whitney Blake Company, New Haven, Connecticut	10 days	192	37 1.92
Valvoline Oil Company, Chicago, Illinois	60 days	-	- .00

*Approximate

35. NEW PUBLICATIONS

Send orders for publications under this heading with remittance only to the Superintendent of Documents, Government Printing Office, Washington, D. C.

Bureau of Standards Journal of Research, Vol. 2, No. 4, April, 1929 - by subscription only \$2.75 per year. (United States and its possessions, Canada, Cuba, New Mexico, Newfoundland, and Republic of Panama); other countries \$3.50.

Research Papers (reprints from Journal) - RP50. Apparatus for thermomagnetic analysis; R. L. Sanford; price 10 cents. RP51. The analysis of fluorspar; G. E. F. Lundell and J. I. Hoffman; price 5 cents. RP52. An interference method for determination of axial and oblique aberrations; A. H. Bennett; price 10 cents. RP53. Determination of molecular weights in the vapor state from vapor pressure and evaporation data; E. W. Washburn; price 5 cents. RP54. The sulphaaluminates of calcium; W. Lerch, F. W. Ashton, and R. H. Bogue; price 10 cents. RP55. An analysis of the arc and spark spectra of yttrium (Yt I and Yt II); W. F. Meggers and H. N. Russell; price 10 cents. RP56. The precise measurement of X-ray dosage; L. S. Taylor; price 10 cents. RP57. Note on an electrical conductance method for determining liquefaction temperatures of solids; E. W. Washburn and E. R. Smith; price 5 cents. RP58. Calibration of sixty-five 35 yellow Lovibond glasses; I. G. Priest, Deane B. Judd, K. S. Gibson, and G. K. Walker; price 10 cents; RP59. The compressive and transverse strength of brick; J. W. McBurney; price 5 cents.

Supplement to Technologic Paper No. 349 inserts for pages 548, 568, and 582. Free on application to the Bureau of Standards.

Circular No. 372. Recommended specification for quicklime and hydrated lime for use in soap making, price 5 cents.

United States Government Master Specifications: (Promulgated by the Federal Specifications Board); No. 23c Lamps, electric incandescent, large, tungsten filament, price 5 cents. 1930 supplement to No. 23c; price 5 cents. No. 581, tires, bicycle, single tube and clincher; price 5 cents. No. 553, metal bases for plaster and stucco construction; price 5 cents.

Technical News Bulletin No. 145, May, 1928 - by subscription only, 25 cents per year (foreign, 40 cents).

Commercial Standards Monthly No. 50--23.

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